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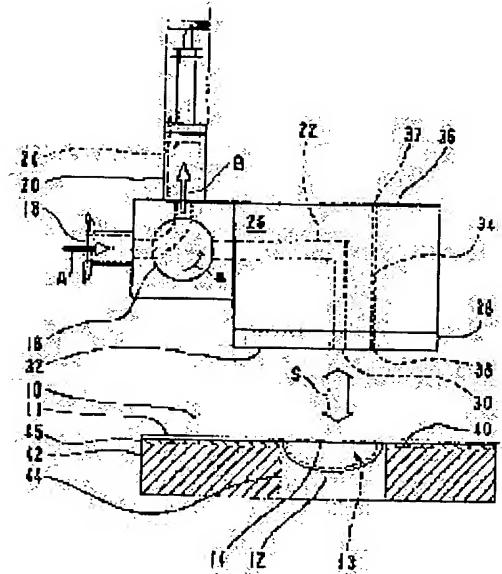
NAKADA ISAMU

(54) PACKAGING EQUIPMENT AND PACKAGING METHOD FOR PRODUCT MADE OF BOILED FISH PASTE

(57) Abstract:

PROBLEM TO BE SOLVED: To provide packaging equipment and a packaging method for filling a product made of boiled fish paste directly into a squeezing type sheet container for sealing.

SOLUTION: A sheet container 10 is placed flat by engaging a container mold part 12 on the recessed part 44 of a supporting table 42. A fixed quantity of a product of boiled fish paste is stored in a measuring cylinder 20 through a switching valve 16. The sheet container 10 is held by a seal panel 28 and the supporting table 42, and a pressing face 32 is closely adhered to the top face 11 of the flat face part 14. The switch valve 16 is switched, the measuring cylinder 20 is communicated through a continuity path 22, a piston 24 is pressed and moved to fill the product in the measuring cylinder 20 into a chamber 13 through the continuity path 22 and a nozzle 30. A somewhat bigger amount than the content volume of the chamber 13 is stored in the measuring cylinder 20, and the amount overflowed after filling the chamber 13 is discharged outside from an escape port 34.



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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view of the sheet container applied to a package of the boiled fish paste concerning this invention.

[Drawing 2] It is the side elevation of the sheet container shown along with the A-A line of drawing 1.

[Drawing 3] It is the typical front view of the package equipment of the boiled fish paste concerning this invention.

[Drawing 4] It is a typical front view explaining restoration actuation of the product in the package equipment of the boiled fish paste concerning this invention.

[Drawing 5] It is a typical front view explaining actuation of the injection nozzle in the package equipment of the boiled fish paste concerning this invention.

[Drawing 6] It is a typical front view explaining the actuation at the time of the completion of product restoration actuation in the package equipment of the boiled fish paste concerning this invention.

[Drawing 7] It is a typical front view explaining preliminary actuation of the product restoration in another example which uses a shutter with the package equipment of the boiled fish paste concerning this invention.

[Drawing 8] It is a typical partial diagrammatic view for the explanation which decompresses the inside of a container in the example of drawing 8 which uses a shutter for product restoration with the package equipment of the boiled fish paste concerning this invention.

[Drawing 9] It is a typical front view explaining restoration actuation of the product in the example of drawing 8 which uses a shutter with the package equipment of the boiled fish paste concerning this invention.

[Drawing 10] It is the typical partial diagrammatic view having shown a part of sheet container seal means in the package equipment of the boiled fish paste concerning this invention in the cross section.

[Drawing 11] It is a perspective view explaining the relation of the crevice of the heat transfer sticking-by-pressure plate of a sheet container seal means and sheet container in the package equipment of the boiled fish paste concerning this invention.

[Drawing 12] It is the sectional view of the 1st example of the heat transfer sticking-by-pressure plate in the package equipment of the boiled fish paste concerning this invention.

[Drawing 13] It is the sectional view of the 2nd example of the heat transfer sticking-by-pressure plate in the package equipment of the boiled fish paste concerning this invention.

[Drawing 14] It is a top view before a package of the sheet container in the package equipment of the boiled fish paste concerning this invention.

[Drawing 15] It is the top view of a sheet container package article with the heat transfer sticking-by-pressure plate of the 1st example in the package equipment of the boiled fish paste concerning this invention.

[Drawing 16] It is the side elevation shown along with the B-B line of drawing 15.

[Drawing 17] It is a top view before a package of another sheet container of the heat transfer sticking-by-pressure plate in the package equipment of the boiled fish paste concerning this invention.

[Drawing 18] It is the top view of a sheet container package article with the heat transfer sticking-by-pressure plate of the 2nd example in the package equipment of the boiled fish paste concerning this invention.

[Description of Notations]

10 Sheet Container

12 Container Type Section

14 Flat-Surface Section

16 Change Bulb

18 Boiled-Fish-Paste Feed Hopper

20 Measuring Cylinder
22 Flow Path
24 Piston
26 Path Block
28 Seal Plate
30 Nozzle
34 Escape Port
42 Susceptor
44 Susceptor Crevice
48 Injection Nozzle
50 Seal Means
52 Shutter
60 Annville
62 Annville Crevice
66 Silicone Rubber
68 Heat-Source Block
70 Electrical Heater
72 Heat Transfer Sticking-by-Pressure Plate
74 Film-like Lid Material
76 Sticking-by-Pressure Inferior Surface of Tongue
78 Sticking-by-Pressure Inferior-Surface-of-Tongue Crevice
82 Projection
84 Column
86 Crosshead
88 Package Article

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] It is related with the equipment and the approach of more specifically filling up deep drawing or the resin molding sheet container (henceforth a sheet container) by *****, i.e., a drawing-die sheet container, with said boiled fish paste, covering the whole top face of this sheet container by film-like lid material with respect to the package gestalt of boiled fish paste, such as a fish meat fish patty and **** minced meat, and giving a seal.

[0002] Here, the opening area of the container with which the sheet container concerning this invention gave and formed deep drawing or ***** in the hard resin sheet is a with an area [of the whole sheet] of 1/2 or less thing. That is, let area of the flat-surface section set as the object of a seal in the sheet container concerning this invention be more things than the sum total of the area of one or more drawing-die container openings formed in this sheet.

[0003]

[Description of the Prior Art] After casting a product with molds, such as a force piston or closed mold, in the case of conventional appearance similar configuration boiled fish paste (henceforth a product) and adding processing of heating or cooling in order to maintain the molding condition, it moves in predetermined containers of a device, such as a vacuum packaging or a package containing air, and is packing.

[0004] Or although it is based on a means to imitate the configuration of a mold to all the corners equally, and to send out a product, using a quantum regurgitation nozzle since a top face is filled up with a product that there is no clearance in the interior of the sheet container which carries out opening when filled up with a product in an immediate container, it is required to control a motion and the amount of sending out of a nozzle to a precision in this case, and the burden placed on a manufacturing cost becomes large.

[0005]

[Problem(s) to be Solved by the Invention] Then, the purpose of this invention is offering the brief package equipment and the package approach of skipping the process which fabricates a product and moves, being directly filled up with a product to a sheet container, and performing a seal.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the package equipment and the package approach of boiled fish paste concerning this invention contain the susceptor to which a product restoration means is equipped with the space in which the container type section of a sheet container is held, and supports the flat-surface section of this sheet container to Taira and others, the seal plate which make stick to the flat-surface section of said sheet container by pressure, and the cylinder which measure said product fed from the feed hopper in that configuration.

[0007] And the piston which injects this measured product further and the flow path which conveys said measured product in the container type section of said sheet container, The change bulb which said cylinder can open for free passage on either and the selection target of said feed hopper or said flow path, The nozzle which is open for free passage with said flow path, and fills up the container mold circles of said sheet container with said product through said seal plate, the escape port which opens the container mold circles of said sheet container for free passage with the open air, and said susceptor and seal plate maintain parallel, and include alienation or the disjunction means which carries out a pressure welding.

[0008] Moreover, it has the susceptor to which a sheet container seal means is equipped with the space in which the container type section of the sheet container filled up with the product is held, and supports the flat-surface section to Taira and others, and a seal means said to carry out the pressure welding of the film-like lid material, and to flat-surface weld it except said container type section.

[0009] In said nozzle which is suitably open for free passage to the container mold circles of said drawing-die sheet container, and said escape port, it has the shutter means which can be changed by turns, and the heel of said escape port is connected with a reduced pressure means. Moreover, it is good for said product restoration means to have the injection nozzle of a liquid towards the sticking-by-pressure side of said seal plate.

[0010] On the other hand, although said seal means consists of a flat-surface member which carries out the seal of the whole surface of the flat-surface section to homogeneity suitably, you may have the linear projection in which this seal means carries out a seal along with the rim and periphery of said sheet container. Moreover, as this seal means, heat sealing or an ultrasonic seal is suitable.

[0011] the product restoration means and container seal means which furthermore described this invention above -- setting -- 1 -- the process which estranges said susceptor and said seal plate and arranges said drawing-die sheet container in said susceptor.

2) The process which carries out sticking-by-pressure pinching of the flat-surface section of said drawing-die sheet container between said susceptors and said seal plates, and seals the interior of the container type section of said drawing-die sheet container.

[0012] 3) The process which opens said feed hopper and said cylinder for free passage by said change bulb, guides said boiled fish paste in said cylinder, and sets up and measures a bigger capacity for how many minutes than the content volume of the container type section of said drawing-die sheet container.

4) The process which changes said change bulb, opens said cylinder and said flow path for free passage, pushes a piston, injects said boiled fish paste for a flow path, and fills up the container mold circles of said drawing-die sheet container with said boiled fish paste from said nozzle.

[0013] 5) The process which makes said susceptor and said seal plate estrange while changing said change bulb and opening said cylinder and said feed hopper for free passage.

6) Take out the drawing-die sheet container with which it filled up with said boiled fish paste from said susceptor, and it is said film-like lid material, and is a wrap process about the whole surface of said drawing-die sheet container.

[0014] 7) Said drawing-die sheet container covered by said film-like lid material is laid in the susceptor of said drawing-die sheet container seal means, and it is characterized by packing a product according to the process which consists of a process which sticks by pressure and carries out the seal of said film-like lid material and said flat-surface section with said seal means.

[0015] Moreover, it is suitable if the process which opens said escape port for free passage to the container mold circles of said sheet container, connects the heel of this escape port with a reduced pressure means, and attracts the air inside a sheet container with said shutter means is included between said processes 3 and processes 4.

[0016] Furthermore, before sealing the interior of said container type section in said process 2, the process which injects a liquid to the sticking-by-pressure side of said seal plate by said injection nozzle is included.

[0017]

[Embodiment of the Invention] Below, the package equipment of the product concerning this invention and the gestalt of operation of the package approach are explained based on a drawing. Drawing 1 is the perspective view of the sheet container 10, and as a hard thermoplastics sheet or a thermoplastic foaming resin sheet shown to drawing 2 in a side elevation, it consists of the container type section 12 to which the side which serves as a top face 11 from one side in response to deep drawing and/or shallow-recessing ***** forms and carries out opening of the crevice, and the flat-surface section 14 which does not receive shaping. The container type section 12 can be constituted from two or more configurations in one or more page [1st] fields of the sheet container 10, and total of the opening area of the container type section 12 is 1/2 or less area of the sheet container 10 whole so that it may be illustrated.

[0018] Drawing 3 is the typical front view showing one example of a means by which it is filled up in atrioventricular 13 of the container type section 12 which prepared the product in the sheet container 10 in the package equipment concerning this invention. Although two or more container type sections are illustrated by drawing 1 or drawing 2 , in order to avoid complexity, explanation about restoration of a product is given about one of them.

[0019] In drawing 3 , 16 is the change bulb of three ports, and since the circuit (arrow head B) which opens a feed hopper 18 and the measuring cylinder 20 for free passage in order to introduce a product, as shown by the arrow head A, or a product is sent out, either of the circuits (refer to arrow-head C of drawing 4) which open the measuring cylinder 20 and the flow path 22 for free passage is changed alternatively.

[0020] 24 is a piston and carries out extrusion of the product which slid on the inside of the measuring cylinder 20, and attracted the product of the specified quantity in the measuring cylinder 20 from the feed hopper 18, and was introduced in the measuring cylinder 20 to the flow path 22. The flow path 22 opens for free passage the measuring cylinder 20 and the nozzle 30 drilled in the seal plate 28 through the inside of the path block 26 (refer to drawing 4).

[0021] The seal plate 28 is fixed to the inferior-surface-of-tongue side of the path block 26 by one, it has the flat sticking-by-pressure side 32, and surface treatment processing is made by special coating which prevents adhesion of a product. Or this seal plate 28 itself may be manufactured with a fitness ingredient to which a product does not adhere.

[0022] In the seal plate 28, the escape port 34 is established in the contiguity location of a nozzle 30, and the path block 26 is penetrated, and it is open for free passage to the opening 37 of a top face 36, and is wide opened by the open air. The location of the bottom opening 38 of the escape port 34 is set up so that it may correspond to a suitable location in the field of the container type section 12 with the location of a nozzle 30.

[0023] The susceptor 42 which, on the other hand, has the top face 40 parallel to the sticking-by-pressure side 32 of the seal plate 28 is formed, and a parallel displacement is carried out in the direction of disjunction to the sticking-by-pressure side 32 (the location which estranged drawing 3 in the direction of arrow-head S is illustrated). In this case, either of the means which carries out opposite migration of the both sides of a means to make it go up and down the seal plate 28 all over drawing, a means to go up and down susceptor 42 or the seal plate 28, and susceptor 42 is applied.

[0024] The crevice 44 which was fitted to the magnitude, configuration, and array of each sheet container 10, and met, the flat-surface configuration, i.e., the projection profile, of the container type section 12, is established in susceptor 42. Therefore, if the container type section 12 lays the sheet container 10 in susceptor 42 as it inserts in a crevice 44, the flat-surface section 14 of the sheet container 10 will be supported by the top face 40 of susceptor 42 in Taira and others, without receiving distortion. Moreover, the rubber sheet 45 which the profile of the container type section 12 was fitted to the top face 40, and drilled the bore is stuck, the stress of sticking by pressure is eased, and equal pressure allocation is carried out to a sticking-by-pressure side.

[0025] How to fill up below with a product with this product restoration means at the container type section 12 is explained. By inserting the part which the crevice 44 of the susceptor 42 doubled with the drawing configuration of the container type section 12 is made to adjust the location of the container type section 12, and projects caudad, the sticking-by-pressure side of the flat-surface section 14 touches the top face 40 of susceptor 42 equally, and the sheet container 10 is laid on susceptor 42 in Taira and others.

[0026] First, feeding a product from the metering pump of the last process containing a hopper etc. which is not illustrated etc., and always holding the inside of the charging line in the fixed pressurization condition, as shown by the arrow head A, a quantum is held in the measuring cylinder 20 through the change bulb 16 (arrow head B). An arrow head a shows the actuation direction of the change bulb 16.

[0027] Next, it is made to move in the contiguity direction relatively by the elevator style which does not illustrate the seal plate 28 and susceptor 42, and where the sheet container 10 is pinched further, pressurization adhesion of the mutual field is carried out (arrow head P). That is, the inferior surface of tongue of the flat-surface section 14 of the sheet container 10 and the top face of the rubber sheet 45 are in an adhesion condition, and the sticking-by-pressure side 32 of the seal plate 28 and the top face of the flat-surface section 14 are in an adhesion condition. At this time, opening of a nozzle 30 and the escape port 34 is carried out into atrioventricular 13 of the container type section 12.

[0028] this condition -- atrioventricular [of the container type section 12] -- although 13 is close to the locked-up room with empty, since the escape port 34 is open for free passage in the open air -- atrioventricular -- the internal pressure of 13 is maintained at atmospheric pressure. And as shown in drawing 4 , change the change bulb 16 (arrow head b), and the flow path 22 is made to open the measuring cylinder 20 for free passage, the product of a quantum which pushes a piston 24 in the direction of arrow-head C, and is held in the measuring cylinder 20 is sent out, and as an arrow head E shows, full restoration of the inside of atrioventricular 13 is certainly carried out through the flow path 22 and a nozzle 30.

[0029] for this reason, atrioventricular [in / for the amount of products held in the measuring cylinder 20 / the container type section 12] -- it is set as more [for how many minutes] optimum dose than the content volume of 13. therefore, atrioventricular -- the product for a surplus which filled 13 and overflowed it invades in the escape port 34, and is discharged outside from opening of the top face 36 of the path block 26 (refer to arrow-head [of drawing 4] R).

[0030] After ending restoration, the parallel displacement of the seal plate 28 and the susceptor 42 is made to carry out in the direction relatively estranged mutually by the elevator style which is not illustrated (arrow head S). The product stuck to the sticking-by-pressure side 32 of the seal plate 28 by carrying out surface treatment processing of the sticking-by-pressure side 32 by special coating as described above at this time since seal plate 28 the very thing was manufactured with the fitness quality of the material to which a product does not adhere is . ** to detach.

[0031] In the sticking-by-pressure side 32 of the seal plate 28, the separating media 46 which make separation of a product easy depending on the class of product, such as water and alcohol, are turned to the sticking-by-pressure side 32 of the seal plate 28, are injected from an injection nozzle 48, and you may make it prevent adhesion of a product in

advance of adhesion actuation with susceptor 42 to it if needed by forming the coat of a separating medium 46 in the sticking-by-pressure side 32 (refer to drawing 5).

[0032] Although the coat of a separating medium 46 adhering to the sticking-by-pressure side 32 once adheres to the top face of the flat-surface section 14 of the sheet container 10 when the sheet container 10 is pinched and stuck by pressure between the seal plate 28 and susceptor 42, it is extruded by the way outside the sheet container 10 according to the sticking-by-pressure force of adhesion actuation.

[0033] By processing of one of the above, the sheet container 10 which restoration completed is held at susceptor 42, it estranges from the seal plate 28 (arrow head S), and the sheet container 10 is removed from susceptor 42 in the product full condition (refer to drawing 6). Then, the whole surface by the side of the top face 11 as for which the container type section 12 carries out opening is covered, a seal means 50 to stretch and mention the film-like lid material 74 later performs seal processing about the top-face 11 whole surface of a sheet product 10ful of a container, and a package of a product is completed.

[0034] Next, it has the shutter means which can be changed by turns for the nozzle 30 and the escape port 34 which are filled up with a product in the container type section 12, and another example of the product restoration means in the package equipment concerning this invention which connected outer edge opening of the escape port 34 with the reduced pressure means is explained based on drawing 7 - drawing 9 . The same sign is used for what is common in the account example of drawing Nakagami.

[0035] A shutter 52 is formed in the path block 26 side in the boundary parts of the path block 26 and the seal plate 28 so that it may be typically illustrated by drawing 7 - drawing 9 . The bore 56 which opens for free passage between escape port edge 34a in the bore 54 which it can be slid on a shutter 52 in parallel with the sticking-by-pressure side 32, and opens the flow path 22 and a nozzle 30 for free passage, and the seal plate 28, and escape port extension section 34b within the path block 26 is drilled.

[0036] When the flow path 22 and a nozzle 30 are open for free passage, edge 34a of the escape port 34 and extension section 34b are intercepted by the shutter 52, and when edge 34a of an escape port and extension section 34b are conversely open for free passage, the flow path 22 and a nozzle 30 are intercepted by the shutter 52.

[0037] How to fill up the container type section 12 with a product with the product restoration means which equipped below with the shutter means is explained. carry out pressurization adhesion of the field mutual in the mode which be make to move the seal plate 28 and susceptor 42 in the contiguity direction relatively by the elevator style which be illustrate like the above-mentioned example (arrow head P) , and pinch the sheet container 10 where a product be hold in the measuring cylinder 20 as show in drawing 7 -- atrioventricular [of the container type section 12] -- 13 be seal .

[0038] At this time, the change bulb 16 is rotating in the location which the measuring cylinder 20 and the flow path 22 open for free passage (arrow head b), a shutter 52 slides on the location which intercepts the nozzle 30 of the seal plate 28 from the flow path 22 (arrow head e), and a bore 56 is adjusted by the location which opens edge 34a of the escape port 34, and extension section 34b for free passage.

[0039] It connects with the pressure-reducing-circuit terminal of the decompression device which does not illustrate the opening 37 in the top face 36 of escape port extension section 34b which penetrates the path block 26, and the air in atrioventricular 13 of the container type section 12 is attracted. this actuation -- atrioventricular -- the interior of a room of 13 will be in a negative pressure condition, and the container type section 12 will receive contraction deformation depending on the case (refer to drawing 8). However, the seal plate 28 and the sticking-by-pressure reinforcement of susceptor 42 are fully large, and it is not influenced by this contraction deformation.

[0040] Next, as shown in drawing 9 , while moving the location of a shutter 52, removing a bore 56 from the free passage location of the escape port 34 (arrow head f) and intercepting the circuit of escape port extension section 34b, the flow path 22 and a nozzle 30 are opened for free passage by the bore 54. Then, a piston 24 is operated and it is filled up with a product in atrioventricular 13 of the container type section 12 from a nozzle 30 like the above-mentioned example (arrow head E). In this case, since the inside of atrioventricular 13 has negative pressure, it fills up with it smoothly and quickly until a product reaches all the corners in atrioventricular 13.

[0041] If restoration of a product is completed to the container type section 12 of the sheet container 10, susceptor 42 and the seal plate 28 will be estranged and the sheet container 10 of a product full condition will be removed from susceptor 42. Then, like the above-mentioned example, the whole top-face 11 side surface of the sheet container 10 is covered, seal processing is performed by seal means 50 to stretch and mention the film-like lid material 74 later, about the whole top-face 11 side surface of a sheet product 10ful of a container, and a package of a product is completed.

[0042] The seal means 50 of the package equipment concerning this invention is explained based on a drawing below. Drawing 10 is the mimetic diagram of a seal means to carry out the pressure welding of the film-like lid material 74, and to flat-surface weld [of the sheet container 10 / 14] it, and the seal means by heat sealing is illustrated as an

example.

[0043] In drawing 10, 60 is Annville and the crevice 62 which was fitted to the magnitude, configuration, and array of each sheet container 10, and met, the flat-surface configuration, i.e., the projection profile, of the container type section 12, is formed. Therefore, if the container type section 12 lays the sheet container 10 in Annville 60 as it inserts in a crevice 60, the flat-surface section 14 of the sheet container 10 will be supported by the top face 64 of Annville 60 in Taira and others, without receiving distortion. Moreover, the heat-resistant silicone rubber sheet 66 which the profile of the container type section 12 was fitted to the top face 64, and drilled the bore is stuck, the stress of sticking by pressure is eased, and equal pressure allocation is carried out to a sticking-by-pressure side.

[0044] Although the electrical heater 70 is laid underground with a heat-source block by a diagram, 68 may lay a steamy pipe underground or may prepare a supersonic vibration head. With a heat transfer sticking-by-pressure plate, 72 sticks the film-like lid material 74 to the top face 11 of the flat-surface section 14 of the sheet container 10 by pressure from the upper part, and carries out heating welding. The aluminum foil which carried out the coat of the thermoplastics is applied to a thermoplastics film or a covering side at the film-like lid material 74.

[0045] As shown in drawing 11 - drawing 13, the crevice 78 equipped with the profile corresponding to the magnitude of each container type section 12 and a configuration is established in the correspondence location of the container type section 12, and depth d may be at least 4mm on the sticking-by-pressure inferior surface of tongue 76 of the heat transfer sticking-by-pressure plate 72. Therefore, transfer of heat is avoided by the product which it carried a full load of in the container type section 12. Drawing 11 is a typical perspective view explaining correspondence with the container type section 12 and a crevice 78, and drawing 12 is the sectional view shown along with the B-B line of drawing 11.

[0046] Since sticking-by-pressure inferior-surface-of-tongue 76a in 1st heat transfer sticking-by-pressure plate 72a shown in drawing 12 is a flat surface except crevice 78a and carries out field contact in the flat-surface section 14 of the sheet container 10, a flat-surface seal is performed.

[0047] the rim of the configuration and the sheet container 10 which were along the periphery of the container type section 12 at sticking-by-pressure inferior-surface-of-tongue 76 of 2nd heat transfer sticking-by-pressure plate 72b b in addition to it although drawing 13 is cross-section illustration of 2nd heat transfer sticking-by-pressure plate 72b by another example and crevice 78b was prepared like 1st heat transfer sticking-by-pressure plate 72a -- meeting -- a line - the projection 82 is formed. As for protrusion height t of a projection, it is desirable to set width of face w to about 1.0mm or more by about 0.1mm. in this case, the inferior surface of tongue of projection 82 -- the flat-surface section 14 of the sheet container 10, and line contact -- carrying out -- a line -- a seal is given.

[0048] Furthermore, while carrying out rise-and-fall migration of the crosshead 86 which was interlocked with the piston which 84 is a drive column and is not illustrated in illustration of drawing 10, operated to the upper and lower sides (an arrow head G and an arrow head H), and was fixed to the lower limit Annville 60 is made to turn, boil and carry out the pressure welding of the heat transfer sticking-by-pressure plate 72 through the heat-source block 68 fixed to the crosshead 86 (arrow head H), and the heating seal of the film-like lid material 74 is stuck by pressure and carried out to the sheet container 10 between the heat transfer sticking-by-pressure plate 72 and Annville 60.

[0049] The temperature of the heat-source block 68 is controlled by the temperature controller which separate installation does not illustrate to act as the monitor of the temperature under [of the heat transfer sticking-by-pressure plate 72 / 76] sticking by pressure, and to maintain to predetermined temperature. Furthermore, an actuation stroke, the actuation rate, the sticking-by-pressure pressure, and sticking-by-pressure time amount of the drive column 84 are adjusted by the drive control unit which separate installation does not illustrate, and a sticking-by-pressure pressure and sticking-by-pressure time amount are especially managed by the precision.

[0050] Below, actuation of the seal means 50 shown in drawing 10 is explained. First, the sticking-by-pressure inferior surface of tongue 76 is held at predetermined seal temperature. A column 84 is operated, a crosshead 86 is raised (arrow head G), and gap sufficient between the sticking-by-pressure inferior surface of tongue 76 and Annville 60 is prepared. As the container type section 12 of the sheet container 10 inserts in a crevice 78 on Annville 60, it fills up with a product, and the sheet container 10 is laid in Taira and others.

[0051] Since heat sealing will become inadequate if the residual component of the separating medium 46 used for the last process at the time of restoration has adhered to the flat-surface section 14 of the sheet container 10 at this time, before covering with the film-like lid material 74, the remnants of a separating medium 46 are wiped off from the flat-surface section 14, and means, such as suction or desiccation, fully remove.

[0052] And stretch the film-like lid material 74 on the top face 11 of the sheet container 10, cover the whole surface, it is made to descend at the predetermined actuation rate which had the column 84 adjusted, and sticking-by-pressure heating of the film-like lid material 74 is carried out on the sticking-by-pressure inferior surface of tongue 76 held at

the predetermined temperature of the heat transfer sticking-by-pressure plate 72 at the flat-surface section 14 of the sheet container 10. If the set-up sticking-by-pressure time amount passes, a column 84 goes up automatically (arrow head G), and the sticking-by-pressure inferior surface of tongue 76 will secede from the top face of the film-like lid material 74, and it will complete a package of the sheet container 10 and the product by the lid material 74. [0053]

[Example] The slash has shown that restoration of product 90a is completed to container type section 12a to sheet container 10a shown in drawing 14 with the top view. Drawing 15 is flat-surface illustration of the package article 88 which applied the 1st heat transfer sticking-by-pressure plate 72 to such sheet container 10a, and heat sealed the film-like lid material 74.

[0054] In drawing 15, since the sticking-by-pressure side under [of 1st heat transfer sticking-by-pressure plate 72a / 76] sticking by pressure is a flat surface, the slash according that the seal of the flat-surface section 14a is carried out on the whole surface to a broken line has shown. The lid material 74 is given in the mode which forms the extension section 92 in the outside of a edge more than all the area of top-face 11a of sheet container 10a, or it, and is giving the facilities at the time of opening so that I may be understood from the side elevation illustrated by drawing 16.

[0055] To container sheet 10b illustrating the restoration of product 90b of drawing 18 being completed, and being in drawing 17 with a slash, in the condition before heat sealing of having not covered with lid material 74b yet, the 2nd heat transfer sticking-by-pressure plate 72 is applied, and package article 88b which heat sealed film-like lid material 74b is shown. the line which gave the drawing minor point and was shown with the sign 94 -- the inside of a partition is a heat-sealing part.

[0056]

[Effect of the Invention] Since the process of product migration is skipped by being directly filled up with boiled fish paste to a drawing-die sheet container, and performing a seal, without affecting a manufacturing cost, mixing of saprophytic bacteria is controlled and deterioration of the product quality by direct heat-treatment at the process before a package etc. can be avoided.

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CLAIMS

[Claim(s)]

[Claim 1] The susceptor to which a boiled-fish-paste restoration means is equipped with the space in which the container type section of a drawing-die sheet container is held, and supports the flat-surface section of a drawing-die sheet container to Taira and others, The seal plate made to stick to the flat-surface section of said drawing-die sheet container by pressure, and the cylinder which measures said boiled fish paste fed from the feed hopper, The piston which injects this measured boiled fish paste, and the flow path which conveys said measured boiled fish paste in the container type section of said drawing-die sheet container, The change bulb which said cylinder can open for free passage on either and the selection target of said feed hopper or said flow path, The nozzle which is open for free passage with said flow path, and fills up the container mold circles of said drawing-die sheet container with said boiled fish paste through said seal plate, The escape port which opens the container mold circles of said drawing-die sheet container for free passage with the open air, Maintain parallel and said susceptor and seal plate are relatively consisted of alienation or a disjunction means which carries out a pressure welding mutually. The susceptor which supports the flat-surface section of said drawing-die sheet container with which the drawing-die sheet container seal means was equipped with the space in which the container type section of said drawing-die sheet container is held, and was filled up with said boiled fish paste to Taira and others, Package equipment of boiled fish paste equipped with a seal means said to carry out the pressure welding of the film-like lid material, and to flat-surface weld it except said container type section.

[Claim 2] Package equipment of the boiled fish paste according to claim 1 with which it has the shutter means which can be changed by turns, and the heel of said escape port is connected with the reduced pressure means in said nozzle which is open for free passage to the container mold circles of said drawing-die sheet container, and said escape port.

[Claim 3] Package equipment of the boiled fish paste according to claim 1 or 2 with which said boiled-fish-paste restoration means is equipped with the injection nozzle of a liquid towards the sticking-by-pressure side of said seal plate.

[Claim 4] Package equipment of boiled fish paste given in either of claims 1-3 which said seal means becomes from the flat-surface member which carries out the seal of the whole surface of the flat-surface section to homogeneity.

[Claim 5] Package equipment of boiled fish paste given in either of claims 1-3 equipped with the linear projection in which said seal means carries out a seal along with the rim and periphery of said drawing-die sheet container.

[Claim 6] Package equipment of boiled fish paste given in either of claims 1-5 said whose seal means are heat sealing.

[Claim 7] Package equipment of boiled fish paste given in either of claims 1-5 said whose seal means are ultrasonic seals.

[Claim 8] The susceptor to which a boiled-fish-paste restoration means is equipped with the space in which the container type section of a drawing-die sheet container is held, and supports the flat-surface section of said drawing-die sheet container to Taira and others, The seal plate stuck to the flat-surface section of said drawing-die sheet container by pressure, and the cylinder which measures said boiled fish paste fed from the feed hopper, The piston which injects this measured boiled fish paste, and the flow path which conveys said measured boiled fish paste in the container type section of said drawing-die sheet container, The change bulb which said cylinder can open for free passage on either and the selection target of said feed hopper or said flow path, The nozzle which is open for free passage with said flow path, and fills up the container mold circles of said drawing-die sheet container with said boiled fish paste through said seal plate, The escape port which opens the container mold circles of said drawing-die sheet container for free passage with the open air, Said susceptor and seal plate maintain parallel and consist of alienation or a disjunction means which carries out a pressure welding. Moreover, the susceptor to which a drawing-die sheet container seal means is equipped with the space in which the container type section of the drawing-die sheet container filled up with boiled fish paste is held, and supports said flat-surface section to Taira and others, In the package equipment of boiled fish paste equipped

with a seal means said to carry out the pressure welding of the film-like lid material, and to flat-surface weld it except said container type section, the 1 aforementioned susceptor and said seal plate are estranged. the process 2 which arranges said drawing-die sheet container in said susceptor -- between said susceptors and said seal plates the process 3 which carries out sticking-by-pressure pinching of the flat-surface section of said drawing-die sheet container, and seals the interior of the container type section of said drawing-die sheet container -- by said change bulb Change said change bulb and said cylinder and said flow path are opened for free passage. the process 4 which opens said feed hopper and said cylinder for free passage, guides said boiled fish paste in said cylinder, and sets up and measures a bigger capacity for how many minutes than the content volume of the container type section of said drawing-die sheet container -- Push a piston and said boiled fish paste is injected for a flow path. the process 5 which fills up the container mold circles of said drawing-die sheet container with said boiled fish paste from said nozzle, while changing said change bulb and opening said cylinder and said feed hopper for free passage The drawing-die sheet container with which it filled up with said boiled fish paste is taken out from said susceptor. the process 6 which makes said susceptor and said seal plate estrange -- Said drawing-die sheet container covered by said film-like lid material is laid in the susceptor of said drawing-die sheet container seal means. said film-like lid material -- the whole surface of said drawing-die sheet container -- the wrap process 7 -- The package approach of the boiled fish paste characterized by packing boiled fish paste according to the process which sticks by pressure and carries out the seal of said film-like lid material and said sheet section with said seal means.

[Claim 9] Said boiled-fish-paste restoration means is equipped with the shutter means which can be changed by turns for said nozzle which is open for free passage to the container mold circles of said drawing-die sheet container, and said escape port, and connects the heel of said escape port with a reduced pressure means. The package approach of the boiled fish paste according to claim 8 which includes the process which opens said escape port for free passage in said sheet container, connects the heel of this escape port with a reduced pressure means, and attracts the air inside said drawing-die sheet container with said shutter means between said processes 3 and processes 4.

[Claim 10] The package approach of boiled fish paste including the process which injects a liquid to the sticking-by-pressure side of said seal plate before said boiled-fish-paste restoration means is equipped with the injection nozzle of a liquid towards the sticking-by-pressure side of said seal plate and sealing the interior of said container type section in said process 2 according to claim 8 or 9.

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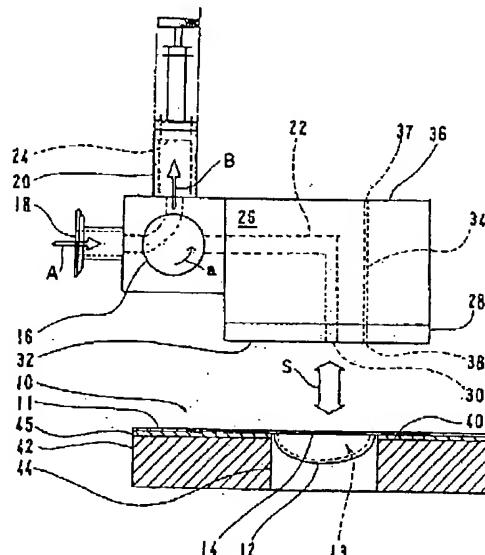
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(54) 【発明の名称】 練り製品の包装装置及び包装方法

(57) 【要約】

【課題】 練り製品を絞り型シート容器へ直接充填してシールする包装装置および包装方法を提供する。

【解決手段】 支持台42の凹部44に容器型部12を嵌入してシート容器10を平らに載置する。練り製品の定量が切替バルブ16を経て計量シリンダ20内に収容される。シール板28と支持台42でシート容器10を挟持し圧着面32を平面部14の上面11に密着させる。切替バルブ16を切替えて、計量シリンダ20を導通経路22に連通し、ピストン24を押動して計量シリンダ20内の製品を導通経路22およびノズル30を介して房室13内に充填する。計量シリンダ20には房室13の内容積より幾分多い製品量を収容し、房室13を満杯にしてオーバーフローした余剰製品はエスケープポート34から外部に排出する。



【特許請求の範囲】

【請求項1】 練り製品充填手段が、絞り型シート容器の容器型部を収容する空間を備え絞り型シート容器の平面部を平らに支持する支持台と、前記絞り型シート容器の平面部に圧着させるシール板と、供給口より送入された前記練り製品を計量するシリンダと、この計量された練り製品を射出するピストンと、前記絞り型シート容器の容器型部に前記計量された練り製品を搬送する導通経路と、前記シリンダが前記供給口または前記導通経路のいずれかと選択的に連通可能な切替えバルブと、前記導通経路と連通し前記練り製品を前記シール板を介して前記絞り型シート容器の容器型部内に充填するノズルと、前記絞り型シート容器の容器型部内を外気と連通するエスケープポートと、前記支持台とシール板とを平行を保って離間または圧接する離接手段とからなり、また絞り型シート容器シール手段が、練り製品を充填した絞り型シート容器の容器型部を収容する空間を備え前記平面部を平らに支持する支持台と、前記容器型部を除く前記平面部にフィルム状の蓋材を圧接して溶着するシール手段とを備える練り製品の包装装置において

10 1) 前記支持台と前記シール板とを離間して、前記支持台に前記絞り型シート容器を配設する工程
 2) 前記支持台と前記シール板との間に前記絞り型シート容器の平面部を圧着挟持して前記絞り型シート容器の容器型部の内部を密閉する工程
 3) 前記切替えバルブにより前記供給口と前記シリンダとを連通して前記練り製品を前記シリンダ内に誘導し前記絞り型シート容器の容器型部の内容積より幾分大きな容量を設定して計量する工程
 4) 前記切替えバルブを切替えて前記シリンダと前記導通経路とを連通し、ピストンを押動して前記練り製品を導通経路に射出し、前記ノズルより前記絞り型シート容器の容器型部内に前記練り製品を充填する工程
 20 5) 前記切替えバルブを切替えて前記シリンダと前記供給口とを連通するとともに前記支持台と前記シール板とを離間させる工程
 6) 前記練り製品の充填された絞り型シート容器を前記支持台より取出して前記フィルム状蓋材で前記絞り型シート容器の全面を覆う工程
 7) 前記絞り型シート容器シール手段の支持台に前記フィルム状蓋材で覆った前記絞り型シート容器を載置し、前記シール手段で前記フィルム状蓋材と前記シート部とを圧着してシールする工程
 により練り製品の包装を行うことを特徴とする練り製品の包装方法。

30 【請求項9】 前記練り製品充填手段が前記絞り型シート容器の容器型部内に連通する前記ノズルと前記エスケープポートとを交互に切替え可能なシャッタ手段を備え、前記エスケープポートの外端部を減圧手段に連結して、前記シャッタ手段により、前記エスケープポートを前記シート容器内に連通してこのエスケープポートの外端部を減圧手段に連結し、前記絞り型シート容器内部の空気を吸引する工程を前記工程3)と工程4)との間に含む請求項8に記載の練り製品の包装方法。

40 【請求項10】 前記練り製品充填手段が前記シール板の圧着面に向けて液体の噴射ノズルを備えており、前記工程2)において前記容器型部の内部を密閉するのに先立って前記シール板の圧着面に液体を噴射する工程を含む請求項8または9に記載の練り製品の包装方法。

【発明の詳細な説明】
 【0001】

【請求項2】 前記絞り型シート容器の容器型部内に連通する前記ノズルと前記エスケープポートとを交互に切替え可能なシャッタ手段を備え、前記エスケープポートの外端部が減圧手段に連結されている請求項1に記載の練り製品の包装装置。

【請求項3】 前記練り製品充填手段が前記シール板の圧着面に向けて液体の噴射ノズルを備えている請求項1または2に記載の練り製品の包装装置。

【請求項4】 前記シール手段が平面部の全面を均一にシールする平面部材からなる請求項1から3のいずれかに記載の練り製品の包装装置。

【請求項5】 前記シール手段が前記絞り型シート容器の外縁および外周に沿ってシールする線状の突起を備える請求項1から3のいずれかに記載の練り製品の包装装置。

【請求項6】 前記シール手段がヒートシールである請求項1から5のいずれかに記載の練り製品の包装装置。

【請求項7】 前記シール手段が超音波シールである請求項1から5のいずれかに記載の練り製品の包装装置。

【請求項8】 練り製品充填手段が、絞り型シート容器の容器型部を収容する空間を備え前記絞り型シート容器の平面部を平らに支持する支持台と、前記絞り型シート容器の平面部に圧着するシール板と、供給口より送入された前記練り製品を計量するシリンダと、この計量された練り製品を射出するピストンと、前記絞り型シート容器の容器型部に前記計量された練り製品を搬送する導通経路と、前記シリンダが前記供給口または前記導通経路のいずれかと選択的に連通可能な切替えバルブと、前記導通経路と連通し前記練り製品を前記シール板を介して

【発明の属する技術分野】魚肉摺身、蓄肉ミンチ等の練り製品の包装形態に係わり、より具体的には前記練り製品を深絞りまたは浅絞りによる樹脂成型シート容器すなわち絞り型シート容器（以下シート容器という）に充填し、このシート容器の上面全体をフィルム状の蓋材で覆ってシールを施す装置および方法に関する。

【0002】ここで、本発明に係わるシート容器とは、硬質の樹脂シートに深絞りまたは浅絞りを施して形成した容器の開口面積がシート全体の面積1/2以下のものである。すなわち、本発明に係わるシート容器においてシールの対象となる平面部の面積は、このシートに形成される一つまたは複数の絞り型容器開口部の面積の合計より多いものとする。

【0003】

【従来の技術】従来の見掛け類似形状練り製品（以下製品という）の場合、製品を押し型あるいは密閉型等の型により成型した後、その成型状態を保つために、加熱または冷却等の処理を加えてから、真空包装あるいは空気入り包装等機器の所定の容器内に移し替えて包装している。

【0004】あるいは、製品を直接容器内に充填する場合には、上面が開口するシート容器内部に隙間なく製品を充填するため、定量吐出ノズルを用いて、均等に隅々まで型の形状に倣って製品を送出する手段によるが、この場合、ノズルの動きと送出量とを精密に制御することが必要で、製造コストにかかる負担が大きくなる。

【0005】

【発明が解決しようとする課題】そこで本発明の目的は、製品を成形して移動する工程を省略し、シート容器へ製品を直接充填してシールを行う簡潔な包装装置および包装方法を提供することである。

【0006】

【課題を解決するための手段】上記の目的を達成するために、本発明に係わる練り製品の包装装置および包装方法はその構成において、製品充填手段が、シート容器の容器型部を収容する空間を備えこのシート容器の平面部を平らに支持する支持台と、前記シート容器の平面部に圧着させるシール板と、供給口より送入された前記製品を計量するシリンダとを含む。

【0007】そしてさらに、この計量された製品を射出するピストンと、前記シート容器の容器型部に前記計量された製品を搬送する導通経路と、前記シリンダが前記供給口または前記導通経路のいずれかと選択的に連通可能な切替えバルブと、前記導通経路と連通し前記製品を前記シール板を介して前記シート容器の容器型部内に充填するノズルと、前記シート容器の容器型部内を外気と連通するエスケープポートと、前記支持台とシール板とが平行を保って離間または圧接する離接手段とを含む。

【0008】また、シート容器シール手段が、製品を充填したシート容器の容器型部を収容する空間を備え平面 50

部を平らに支持する支持台と、前記容器型部を除く前記平面部にフィルム状の蓋材を圧接して溶着するシール手段とを備えている。

【0009】好適には前記絞り型シート容器の容器型部内に連通する前記ノズルと前記エスケープポートとを交互に切替え可能なシャッタ手段を備え、前記エスケープポートの外端部が減圧手段に連結される。また、前記製品充填手段には前記シール板の圧着面に向けて液体の噴射ノズルを備えるとよい。

【0010】一方、好適には前記シール手段は平面部の全面を均一にシールする平面部材からなるが、このシール手段が前記シート容器の外縁および外周に沿ってシールする線状の突起を備えるものであってもよい。また、このシール手段としてはヒートシールまたは超音波シールが好適である。

【0011】さらに本発明は、上記した製品充填手段および容器シール手段において、

1) 前記支持台と前記シール板とを離間して、前記支持台に前記絞り型シート容器を配設する工程。

2) 前記支持台と前記シール板との間に前記絞り型シート容器の平面部を圧着挟持して前記絞り型シート容器の容器型部の内部を密閉する工程。

【0012】3) 前記切替えバルブにより前記供給口と前記シリンダとを連通して前記練り製品を前記シリンダ内に誘導し前記絞り型シート容器の容器型部の内容積より幾分大きな容量を設定して計量する工程。

4) 前記切替えバルブを切替えて前記シリンダと前記導通経路とを連通し、ピストンを押動して前記練り製品を導通経路に射出し、前記ノズルより前記絞り型シート容器の容器型部内に前記練り製品を充填する工程。

【0013】5) 前記切替えバルブを切替えて前記シリンダと前記供給口とを連通するとともに前記支持台と前記シール板とを離間させる工程。

6) 前記練り製品の充填された絞り型シート容器を前記支持台より取出して前記フィルム状蓋材で前記絞り型シート容器の全面を覆う工程。

【0014】7) 前記絞り型シート容器シール手段の支持台に前記フィルム状蓋材で覆った前記絞り型シート容器を載置し、前記シール手段で前記フィルム状蓋材と前記平面部とを圧着してシールする工程からなる工程に従って製品の包装を行うことを特徴とする。

【0015】また、前記シャッタ手段により、前記エスケープポートを前記シート容器の容器型部内に連通して、このエスケープポートの外端部を減圧手段に連結し、シート容器内部の空気を吸引する工程を前記工程3)と工程4)との間に含むと好適である。

【0016】さらには、前記工程2)において前記容器型部の内部を密閉するのに先立ち、前記噴射ノズルにより前記シール板の圧着面に液体を噴射する工程を含む。

【0017】

【発明の実施の形態】以下に、本発明に係わる製品の包装装置および包装方法の実施の形態を図面に基づいて説明する。図1はシート容器10の斜視図で、硬質熱可塑性樹脂シートあるいは熱可塑性発泡樹脂シートが図2に側面図で示されるように、片面より深絞りおよび／または浅絞り加工を受けて、上面11となる側が凹部を形成して開口する容器型部12と成形を受けない平面部14とから構成される。図示されるように、容器型部12は1面のシート容器10の面に1個以上を複数の形状で構成することができ、容器型部12の開口面積の総和はシート容器10全体の面積1/2以下である。

【0018】図3は、本発明に係わる包装装置において、製品をシート容器10に設けた容器型部12の房室13内に充填する手段の一実施例を示す模式的正面図である。図1または図2には複数の容器型部が図示されているが、複雑さを避けるために製品の充填に関する説明はそのうちの一つについて行う。

【0019】図3において、16は3ポートの切替バルブで、製品を矢印Aで示されるように導入するために、供給口18と計量シリンダ20とを連通する回路(矢印B)、または製品を送出するために計量シリンダ20と導通経路22とを連通する回路(図4の矢印C参照)のいずれかが選択的に切替えられる。

【0020】24はピストンで、計量シリンダ20の内面を摺動して供給口18より所定量の製品を計量シリンダ20内に誘引し、また計量シリンダ20内に導入された製品を導通経路22に押出する。導通経路22は通路ブロック26内を通り計量シリンダ20とシール板28に穿設したノズル30とを連通する(図4参照)。

【0021】シール板28は、通路ブロック26の下面側に一体に固定されて平坦な圧着面32を有し、製品の付着を防止する特殊コーティングで表面加工処理がなされている。あるいは、このシール板28それ自体を製品が付着しないような適性材料で製作してもよい。

【0022】シール板28においてノズル30の近接位置にエスケープポート34が設けられ、通路ブロック26を貫通して上面36の開口部37に連通し、外気に開放されている。エスケープポート34の下側開口部38の位置はノズル30の位置とともに容器型部12の領域内で適当な位置に対応するように設定される。

【0023】一方、シール板28の圧着面32と平行な上面40を有する支持台42が設けられ、圧着面32に対して離接方向に平行移動する(図3は矢印S方向に離間した位置が図示してある)。この場合、図中においてシール板28を昇降させる手段、支持台42を昇降する手段あるいはシール板28と支持台42との双方を対向移動させる手段のいずれかが適用される。

【0024】支持台42には、各シート容器10の大きさ、形状および配列に適合させて容器型部12の平面形状すなわち射影輪郭に沿った凹部44が設けられてい

る。従って、容器型部12が凹部44に嵌入するようにしてシート容器10を支持台42に載置すると、シート容器10の平面部14は歪みを受けることなく支持台42の上面40に平らに支持される。また、上面40には容器型部12の輪郭に適合させて透孔を穿設したラバーシート45が貼着されており、圧着の応力を緩和し、圧着面に均等な圧力配分を行う。

【0025】以下に、この製品充填手段により容器型部12に製品を充填する方法について説明する。シート容器10は、容器型部12の絞り形状に合わせた支持台42の凹部44に容器型部12の位置を整合させて下方に突出する部分を嵌入することにより、平面部14の圧着面が支持台42の上面40に均等に接して支持台42上に平らに載置される。

【0026】先ず、ホッパー等を含む図示しない前工程の定量ポンプ等から製品が圧送され、その供給配管内を常に一定の加圧状態に保持したまま、矢印Aで示されるように切替バルブ16を経て計量シリンダ20内に定量が収容される(矢印B)。矢印aは切替バルブ16の作動方向を示す。

【0027】次に、シール板28および支持台42を図示しない昇降機構により相対的に近接方向に移動させ、さらにシート容器10を挟持した状態で互いの面を加圧密着させる(矢印P)。すなわち、シート容器10の平面部14の下面とラバーシート45の上面とは密着状態にあり、またシール板28の圧着面32と平面部14の上面とは密着状態にある。このときノズル30およびエスケープポート34は容器型部12の房室13内に開口している。

【0028】この状態では、容器型部12の房室13は空のままで密室に近いが、エスケープポート34が外気に連通しているので、房室13の室内圧は大気圧に保たれている。それから、図4に示されるように切替バルブ16を切替えて(矢印b)、計量シリンダ20を導通経路22に連通させ、ピストン24を矢印C方向に押動して計量シリンダ20内に収容されている定量の製品を送出し、矢印Eで示すように導通経路22およびノズル30を介して房室13内を確実に完全充填する。

【0029】このため、計量シリンダ20に収容される製品量を容器型部12における房室13の内容積より幾分多い適量に設定しておく。従って、房室13を満杯にしてオーバーフローした余剰分の製品は、エスケープポート34内に侵入し、通路ブロック26の上面36の開口から外部に排出される(図4の矢印R参照)。

【0030】充填を終了した後、シール板28と支持台42とを、図示しない昇降機構により相対的に互いに離間する方向に平行移動させる(矢印S)。このとき、上記したように圧着面32は特殊なコーティングで表面加工処理されているか、またはシール板28自体が製品の付着しない適性材質で製作してあるので、シール板28

の圧着面32に密着した製品は容易に離する。

【0031】製品の種類によっては、必要に応じてシール板28の圧着面32には、支持台42との密着操作に先立って、製品の分離を容易にする水、アルコール等の分離剤46を噴射ノズル48からシール板28の圧着面32に向けて噴射して、圧着面32に分離剤46の被膜を形成することにより製品の付着を防止するようにしてもよい(図5参照)。

【0032】圧着面32に付着した分離剤46の被膜は、シート容器10をシール板28と支持台42との間に挟持して圧着したとき、シート容器10の平面部14の上面に一旦付着するが、密着作動の圧着力により、シート容器10の外方に押し出される。

【0033】上記いずれかの処理により、充填が完了したシート容器10は、支持台42に保持されてシール板28から離間し(矢印S)、シート容器10は製品満杯状態で支持台42から取り外される(図6参照)。その後、容器型部12の開口する上面11側の全面を覆ってフィルム状の蓋材74を張設し、後述するシール手段50により製品満杯のシート容器10の上面11全面に関してシール処理を行い、製品の包装を完成させる。

【0034】次に、製品を容器型部12内に充填するノズル30とエスケープポート34とを交互に切替え可能なシャッタ手段を備え、エスケープポート34の外端開口部を減圧手段に連結した本発明に係わる包装装置における製品充填手段の別の実施例を図7～図9に基づいて説明する。図中上記実施例と共通するものには、同一符号が用いてある。

【0035】図7～図9に模式的に図示されるように、シャッタ52は通路ブロック26とシール板28の境界部分で通路ブロック26側に設けられる。シャッタ52は圧着面32に平行に摺動自在であって、導通経路22とノズル30とを連通する透孔54およびシール板28内のエスケープポート端部34aと通路ブロック26内のエスケープポート延在部34bとの間を連通する透孔56とが穿設されている。

【0036】導通経路22とノズル30とが連通するとき、エスケープポート34の端部34aと延在部34bとはシャッタ52により遮断され、逆にエスケープポートの端部34aと延在部34bとが連通するとき、導通経路22とノズル30とはシャッタ52により遮断される。

【0037】以下に、シャッタ手段を備えた製品充填手段により容器型部12に製品を充填する方法について説明する。図7に示されるように、計量シリンダ20内に製品を収容した状態で、上記実施例同様に図示しない昇降機構によりシール板28および支持台42を相対的に近接方向に移動させ(矢印P)、シート容器10を挟持する態様で互いの面を加圧密着させることにより容器型部12の房室13を密閉する。

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【0038】このとき切替バルブ16は、計量シリンダ20と導通経路22とが連通する位置に回動されており(矢印b)、シャッタ52はシール板28のノズル30を導通経路22から遮断する位置に摺動され(矢印e)、透孔56はエスケープポート34の端部34aと延在部34bとを連通する位置に整合される。

【0039】通路ブロック26を貫通するエスケープポート延在部34bの上面36における開口部37を図示しない減圧装置の減圧回路端末に接続して容器型部12の房室13内の空気を吸引する。この操作により、房室13の室内は負圧状態となり、場合によっては容器型部12は収縮変形を受ける(図8参照)。しかしながら、シール板28および支持台42の圧着強度は十分に大きく、この収縮変形に影響されることはない。

【0040】次に、図9に示されるように、シャッタ52の位置を移動して透孔56をエスケープポート34の連通位置から外し(矢印f)、エスケープポート延在部34bの回路を遮断するとともに透孔54で導通経路22とノズル30とを連通する。引続き、ピストン24を作動させて、上記実施例と同様に、ノズル30より容器型部12の房室13内に製品を充填する(矢印E)。この場合、房室13内は負圧になっているため、製品は房室13内の隅々に至るまで円滑且つ迅速に充填される。

【0041】シート容器10の容器型部12に対して製品の充填が完了すると、支持台42とシール板28とは離間し、製品満杯状態のシート容器10は支持台42から取り外される。その後、上記実施例同様、シート容器10の上面11側全面を覆ってフィルム状の蓋材74を張設し、後述するシール手段50により製品満杯のシート容器10の上面11側全面に関してシール処理が行われ、製品の包装が完成される。

【0042】以下に本発明に係わる包装装置のシール手段50を図面に基づいて説明する。図10はシート容器10の平面部14にフィルム状蓋材74を圧接して溶着するシール手段の模式図で、実施例としてヒートシールによるシール手段が図示してある。

【0043】図10において、60はアンビルで、各シート容器10の大きさ、形状および配列に適合させて容器型部12の平面形状すなわち射影輪郭に沿った凹部62が設けられている。従って、容器型部12が凹部60に嵌入するようにしてシート容器10をアンビル60に載置すると、シート容器10の平面部14は歪みを受けることなくアンビル60の上面64に平らに支持される。また、上面64には容器型部12の輪郭に適合させて透孔を穿設した耐熱性のシリコンラバーシート66を貼着して圧着の応力を緩和し、圧着面に均等な圧力配分を行う。

【0044】68は熱源ブロックで図では電熱ヒータ70が埋設されているが、蒸気パイプを埋設しても、超音波振動ヘッドを設けてもよい。72は伝熱圧着板でフィ

ルム状の蓋材74を上方よりシート容器10の平面部14の上面11に圧着して加熱溶着する。フィルム状の蓋材74には熱可塑性樹脂フィルムまたは被着面に熱可塑性樹脂をコートしたアルミ箔等が適用される。

【0045】伝熱圧着板72の圧着下面76には、図1～図13に示されるように、容器型部12の対応位置には各容器型部12の大きさ、形状に対応する輪郭を備えた凹部78を設け、深さdは少なくとも4mmとする。従って、容器型部12に満載された製品には熱の伝達が回避される。図11は容器型部12と凹部78との対応を説明する模式的斜視図で、図12は図11のB-B線に沿って示した断面図である。

【0046】図12に示される第1の伝熱圧着板72aにおける圧着下面76aは、凹部78a以外は平面であって、シート容器10の平面部14とは面接触するので平面シールが行われる。

【0047】図13は、別の実施例による第2の伝熱圧着板72bの断面図示で、凹部78bは第1の伝熱圧着板72aと同様に設けられているが、それ以外に第2の伝熱圧着板72bの圧着下面76bには容器型部12の周縁に沿った形状およびシート容器10の外縁に沿って線状凸起82が設けられている。凸起の突出高さtは約0.1mmで幅wは約1.0mm以上とすることが望ましい。この場合は、凸起82の下面がシート容器10の平面部14と線接触して線状シールが施される。

【0048】さらに、図10の図示において、84は駆動コラムで、図示しないピストンと連動して上下(矢印Gおよび矢印H)に作動し下端に固定したクロスヘッド86を昇降移動させるとともに、クロスヘッド86に固定した熱源ブロック68を介して伝熱圧着板72をアンビル60に向けて圧接させ(矢印H)、伝熱圧着板72とアンビル60との間でシート容器10にフィルム状蓋材74を圧着し加熱シールする。

【0049】伝熱圧着板72の圧着下面76の温度をモニターして所定温度に維持するように熱源ブロック68の温度が別設の図示しない温度制御装置により制御されている。さらに、駆動コラム84の作動ストローク、作動速度、圧着圧力および圧着時間が別設の図示しない駆動制御装置により調節され、特に圧着圧力および圧着時間が精密に管理されている。

【0050】以下に、図10に示したシール手段50の動作について説明する。まず、圧着下面76が所定のシール温度に保持される。コラム84を作動させてクロスヘッド86を上昇させて(矢印G)、圧着下面76とアンビル60との間に十分な間隙を設ける。アンビル60上において凹部78内にシート容器10の容器型部12が嵌入するようにして、製品が充填されシート容器10を平らに載置する。

【0051】このとき、前工程に充填時に使用した分離剤46の残余成分がシート容器10の平面部14に付着

しているとヒートシールが不十分となるため、フィルム状蓋材74で被覆する前に平面部14から分離剤46の残滓を拭き取り、吸引または乾燥等の手段により、十分に除去しておく。

【0052】それから、シート容器10の上面11にフィルム状蓋材74を張設して全面を覆い、コラム84を調節された所定の作動速度で下降させ、伝熱圧着板72の所定温度を保持された圧着下面76でフィルム状蓋材74をシート容器10の平面部14に圧着加熱する。設定された圧着時間が経過すると、コラム84は自動的に上昇して(矢印G)、圧着下面76はフィルム状蓋材74の上面から離脱し、シート容器10と蓋材74による製品の包装は完了する。

【0053】

【実施例】図14に平面図で示したシート容器10aには、容器型部12aに製品90aの充填が完了していることを斜線で示してある。図15は、このようなシート容器10aに第1の伝熱圧着板72を適用して、フィルム状蓋材74をヒートシールした包装品88の平面図示である。

【0054】図15では、第1の伝熱圧着板72aの圧着下面76の圧着面が平面であるため、平面部14aが全面においてシールされていることを破線による斜線で示してある。図16に図示された側面図から理解されるように、蓋材74はシート容器10aの上面11aの面積全部またはそれ以上に縁部の外側に延在部92を設ける態様で施され、開封時の便宜を図っている。

【0055】図18は、図17に斜線で製品90bの充填が完了していることを図示した、ヒートシール前のまだ蓋材74bで被覆していない状態にある容器シート10bに対し、第2の伝熱圧着板72を適用して、フィルム状蓋材74bをヒートシールした包装品88bを示したものである。図中小点を施し符号94で示した線状区画内がヒートシール部分である。

【0056】

【発明の効果】練り製品を絞り型シート容器へ直接充填してシールを行うことにより、製品移動の工程が省略されるので、製造コストに影響を与えることなく雑菌の混入が抑制され包装前工程での直接加熱処理等による製品品質の変質を回避することができる。

【図面の簡単な説明】

【図1】本発明に係わる練り製品の包装に適用されるシート容器の斜視図である。

【図2】図1のA-A線に沿って示したシート容器の側面図である。

【図3】本発明に係わる練り製品の包装装置の模式的正面図である。

【図4】本発明に係わる練り製品の包装装置における製品の充填動作を説明する模式的正面図である。

【図5】本発明に係わる練り製品の包装装置における噴

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射ノズルの動作を説明する模式的正面図である。

【図6】本発明に係わる練り製品の包装装置における製品充填操作完了時の動作を説明する模式的正面図である。

【図7】本発明に係わる練り製品の包装装置でシャッタを使用する別の実施例における製品充填の予備動作を説明する模式的正面図である。

【図8】本発明に係わる練り製品の包装装置でシャッタを使用する図8の実施例において製品充填のために容器内を減圧する説明のための模式的部分図である。

【図9】本発明に係わる練り製品の包装装置でシャッタを使用する図8の実施例における製品の充填動作を説明する模式的正面図である。

【図10】本発明に係わる練り製品の包装装置におけるシート容器シール手段の一部を断面で示した模式的部分図である。

【図11】本発明に係わる練り製品の包装装置におけるシート容器シール手段の伝熱圧着板の凹部とシート容器との関係を説明する斜視図である。

【図12】本発明に係わる練り製品の包装装置における伝熱圧着板の第1実施例の断面図である。

【図13】本発明に係わる練り製品の包装装置における伝熱圧着板の第2実施例の断面図である。

【図14】本発明に係わる練り製品の包装装置におけるシート容器の包装前の平面図である。

【図15】本発明に係わる練り製品の包装装置における第1実施例の伝熱圧着板によるシート容器包装品の平面図である。

【図16】図15のB-B線に沿って示した側面図である。

【図17】本発明に係わる練り製品の包装装置における伝熱圧着板の別のシート容器の包装前の平面図である。

【図18】本発明に係わる練り製品の包装装置における

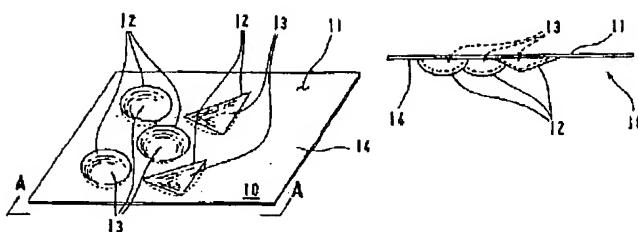
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第2実施例の伝熱圧着板によるシート容器包装品の平面図である。

【符号の説明】

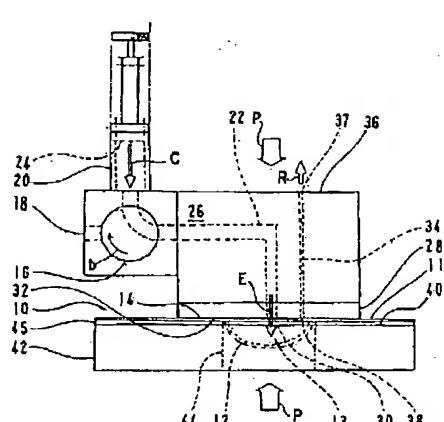
10	シート容器
12	容器型部
14	平面部
16	切替バルブ
18	(練り製品) 供給口
20	計量シリンダ
22	導通経路
24	ピストン
26	通路ブロック
28	シール板
30	ノズル
34	エスケープポート
42	支持台
44	(支持台) 凹部
48	噴射ノズル
50	シール手段
52	シャッタ
60	アンビル
62	(アンビル) 凹部
66	シリコンラバー
68	熱源ブロック
70	電熱ヒータ
72	伝熱圧着板
74	フィルム状蓋材
76	圧着下面
78	(圧着下面) 凹部
82	凸起
84	コラム
86	クロスヘッド
88	包装品

【図1】

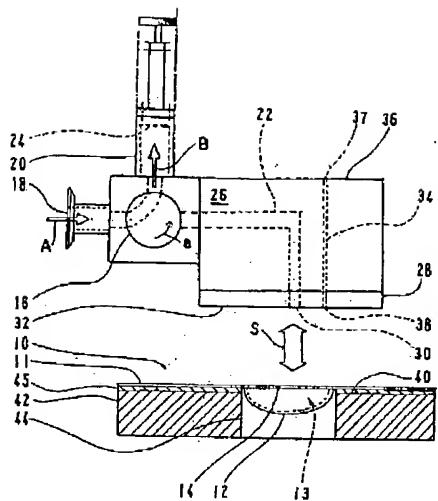


【図2】

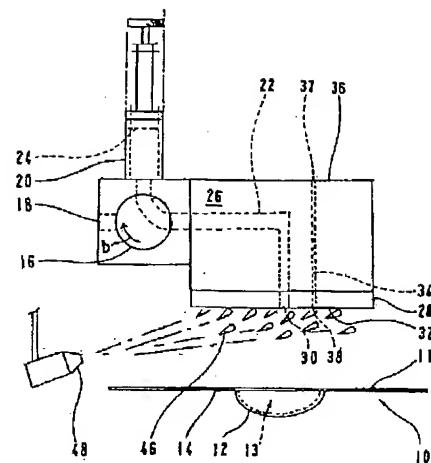
【図4】



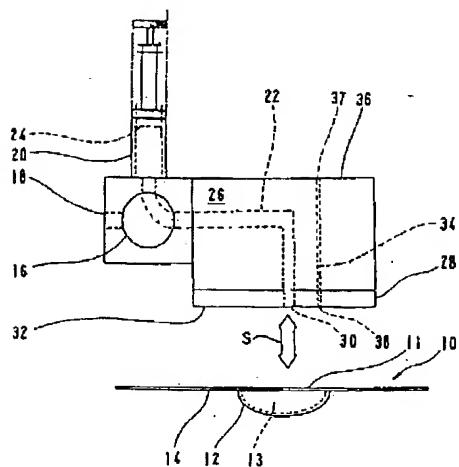
【図3】



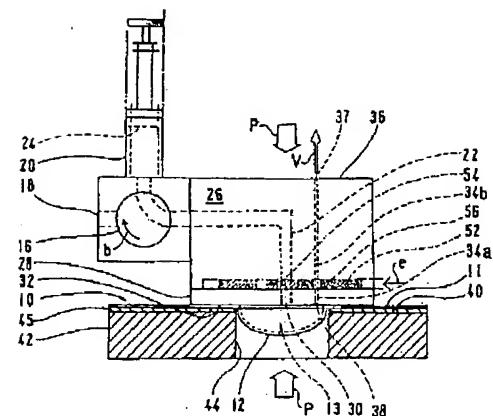
【図5】



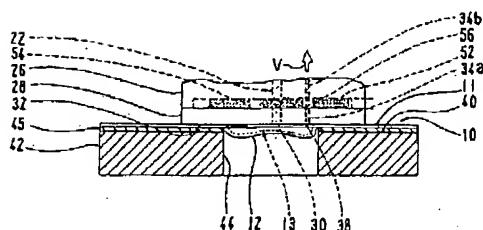
【 6】



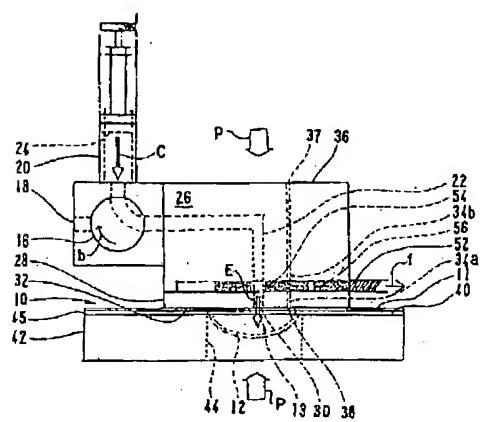
【图7】



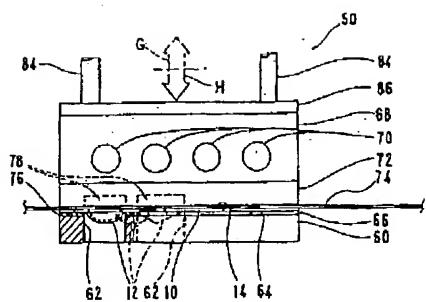
〔図8〕



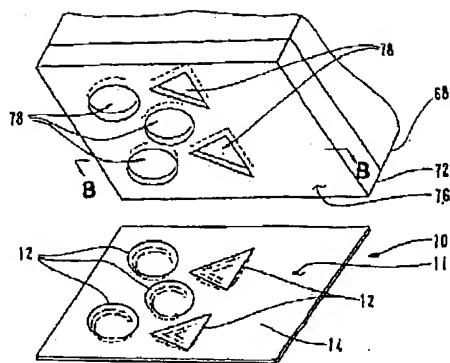
[図9]



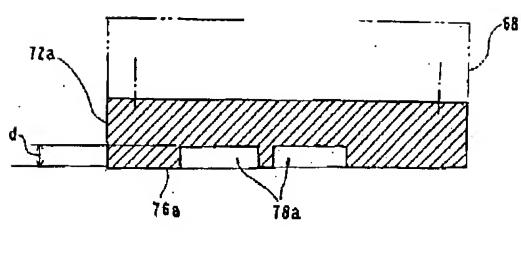
【図10】



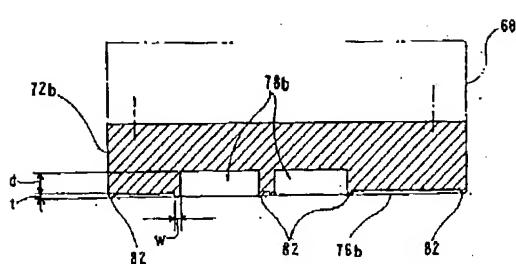
【図11】



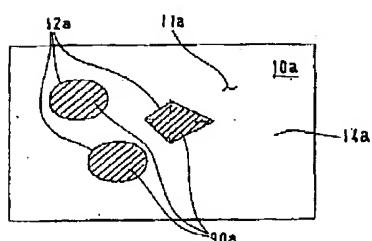
【図12】



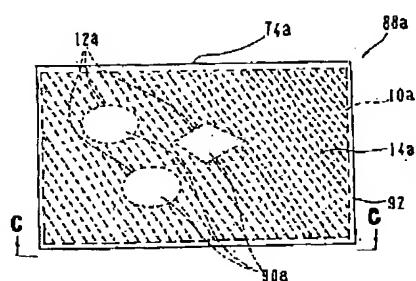
【図13】



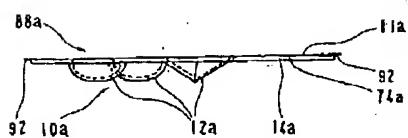
【図14】



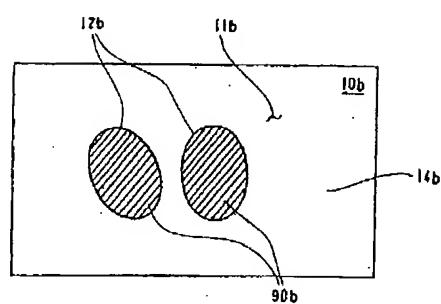
【図15】



【図16】



【図17】



【図18】

